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Symposium 15. Photosynthesis and respiration Paper S15-022: Lack of Genetic Adaptation and Its Effect on Dark Respiration

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Symposium 15. Photosynthesis and respiration

Paper S15-022:

Lack of genetic adaptation and its effect on dark respiration

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Two sorghum genotypes (Pioneer 8244® and H2183210351) with different degree of adaptation to tropical areas were planted in march in Marin, N.L. Mexico (tropical environment). The objective was to relate dark respiration with the lack of genetic adaptation. The dark respiration measurements were made 85 days after planting, during the grain fill period. The plants in one meter long of the central row were used for the measurements. A plexiglass chamber of 1 m long, 0.8 m width and 1 m tall was seated on top of a wood base to cover all plants in the meter of the row. The wood base was to avoid CO_2 influx from the soil. The CO2 measurements inside the camber were made with an infrared gas analyzer LI-COR 6200 (LICOR, CO. USA) at 9:00 hr PM and 05:00 hr AM. The temperature difference between 9:00 PM and 5 AM was 2.3° C. Pioneer was more sensitive in respiration to temperature changes than H2183210351 (3.8 $\mu MolCO_2Kg^{-1}s^{-1}$ and 0.7 $\mu MolCO_2Kg^{-1}s^{-1}$, respectively). The respiration rate in Pioneer 8244 was 200 % higher than H2183210351 (13.7 $\mu MolCO2Kg^{-1}s$-1 and 4.15 $\mu MolCO_2Kg^{-1}s^{-1}$, respectively). The differences in respiration rates are probably due to the lack of adaptation of Pioneer 8244, that it is recommended for temperate environments, compared with the hybrid H2183210351, which parents are more tropical adapted.